SOUTH AFRICAN QUALIFICATIONS AUTHORITY

REGISTERED QUALIFICATION:

Occupational Certificate: Welder

SAQA QUAL ID	QUALIFICATION TITLE
94100	Occupational Certificate: Welder

ORIGINATOR
Development Quality Partner - CHIETA

PRIMARY OR DELEGATED QUALITY ASSURANCE FUNCTIONARY	NQF SUB-FRAMEWORK
QCTO - Quality Council for Trades and Occupations	OQSF - Occupational Qualifications Sub-framework

QUALIFICATION TYPE	FIELD	SUBFIELD
Occupational Certificate	Field 06 - Manufacturing, Engineering and Technology	Manufacturing and Assembly

ABET BAND	MINIMUM CREDITS	PRE-2009 NQF LEVEL	NQF LEVEL	QUAL CLASS
Undefined	373	Not Applicable	NQF Level 04	Regular-ELOAC

REGISTRATION STATUS	SAQA DECISION NUMBER	REGISTRATION START DATE	REGISTRATION END DATE
Reregistered	EXCO 0425/24	2018-07-01	2025-12-30

LAST DATE FOR ENROLMENT	LAST DATE FOR ACHIEVEMENT
2026-12-30	2029-12-30

In all of the tables in this document, both the pre-2009 NQF Level and the NQF Level is shown. In the text (purpose statements, qualification rules, etc), any references to NQF Levels are to the pre-2009 levels unless specifically stated otherwise.

This qualification does not replace any other qualification and is not replaced by any other qualification.

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

The purpose of this qualification is to prepare a learner to:

Join metal products in accordance with Welding Procedure Specifications using an electric arc or gas welding process.

A qualified learner will be able to:

- Perform cutting, gouging and gas welding of ferrous materials using oxy fuel, carbon arc and plasma cutting equipment.
- Produce fillet welds using various welding processes.
- Produce plate welds using various welding processes.
- Produce pipe welds using various welding processes.

Rationale:

This qualification is a listed trade qualification and falls within the Occupational Qualifications Framework of the NQF of South Africa. Of specific importance is the fact that this qualification elevates training of Welders in South Africa to accepted international standards.

A wide range of industries in the South African economy employs welders, qualified as artisans. Inclusive are companies in the manufacturing sector, mining, petro-chemical as well as engineering contractors in large and small projects - including projects that are key to the economic development of South Africa such as power supply.

This qualification addresses one of the key trades in which labour market shortages for skilled artisans are experienced. Reports of large number of welders contracted from other countries to address the scarcity of welding skills are common.

The availability of this Welding qualification for training of trades persons to accepted international standards is regarded as an important resource to support of national artisan development initiatives in South Africa.

The qualification ensures that a sound skills base is developed at artisan level that can serve as the foundation for achieving coded welding status required for the execution of specialised welds by industry.

The importance of providing opportunities for persons that are unemployed, who seeks to develop skills that allows them to enter into small welding business opportunities in rural and developed areas of the country is supported by the design of the qualification. Specific skill sets in basic welding practices are inclusive and allows for the training of such persons within the overall structure of the trade. Recognition achieved for completion of these skills sets, when delivered by accredited providers, allows the learners to build their portfolio and towards completion of the full trade.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

Recognition of Prior Learning (RPL):

RPL for access to the integrated assessment:

Accredited providers and approved workplaces must apply the internal assessment criteria specified in the related curriculum document to establish and conform prior learning. Prior learning must be acknowledged by a statement of results.

RPL for entry requirements to access the qualification:

Accredited providers and approved workplaces may recognise prior learning against the relevant access requirements.

Entry Requirements:

- NQF Level 1 with Mathematics and Science.

RECOGNISE PREVIOUS LEARNING?

Y

QUALIFICATION RULES

This qualification is made up of the following compulsory Knowledge and Practical Skill Modules:

Knowledge Modules:

- Introduction to the welding trade, NQF Level 2, 2 Credits.
- Occupational Safety, Health and Environmental Protection, NQF Level 2, 4 Credits.
- Welding schematics, calculations, welds and welded joints, NQF Level 2, 6 Credits.
- Weld imperfections, NQF Level 2, 2 Credits.
- Cutting and gouging, NQF Level 2, 2 Credits.
- Welding consumable classification and handling, NQF Level 2, 4 Credits.
- Metals and weldability of metals, NQF Level 3, 8 Credits.
- Fusion welding, NQF Level 3, 6 Credits.
- Arc welding, NQF Level 3, 8 Credits.
- Gas welding and cutting, NQF Level 3, 4 Credits.
- Welding codes, standards and parameters, NQF Level 4, 6 Credits.
- Shrinkage, residual stress and distortion, NQF Level 4, 4 Credits.
- Manual Metal Arc, MMA welding process, NQF Level 4, 7 Credits.
- The Metal Inert Gas/Metal Active Gas/Flux Cored Arc, MIG/MAG/FCAW welding process, NQF Level 7, 7 Credits.
- Manual Metal Arc, MMA welding process, NQF Level 4, 7 Credits.
- Welding inspection and quality, NQF Level 4, 4 Credits.

Total number of Credits for the Knowledge Modules: 81.

Practical Skills Modules:

- Fabricate simple components or work pieces, NQF Level 2, 4 Credits.

- Cut, gouge and gas weld material manually, NQF Level 2, 12 Credits.
- Perform fillet welds using the Shielded Metal Arc Welding process, NQF Level 3, 12 Credits.
- Perform fillet welds using the Gas Metal Arc Welding process, NQF Level 3, 12 Credits.
- Perform fillet welds using the Gas Tungsten Arc Welding process, NQF Level 3, 16 Credits.
- Perform plate butt welds using the Shielded Metal Arc Welding process, NQF Level 4, 16 Credits.
- Perform plate butt welds using the Gas Metal Arc Welding process, NQF Level 4, 16 Credits.
- Perform plate butt welds using the Gas Tungsten Arc Welding process, NQF Level 4, 16 Credits.
- Perform pipe welds using the Shielded Metal Arc Welding process, NQF Level 4, 16 Credits.
- Perform pipe welds using the Gas Metal Arc Welding process, NQF Level 4, 16 Credits.
- Perform pipe welds using the Gas Tungsten Arc Welding process, NQF Level 4, 20 Credits.

Total number of credits for the Practical Skills Modules: 140.

This qualification also requires the following compulsory Work Experience Modules:

- Cut and gouge a range of materials in the workplace, NQF Level 2, 8 Credits.
- Produce a range of fillet welds using various welding processes in a workplace, NQF Level 4, 40 Credits.
- Care for, control and handle consumables and materials in a workshop, NQF Level 2, 4 Credits.
- Produce a range of plate welds using various welding processes in a workplace, NQF Level 4, 40 Credits.
- Team work, communication and reporting in the workplace, NQF Level 3, 8 Credits.
- Produce a range of pipe welds using various welding processes in a workplace, NQF Level 4, 52 Credits.

Total credits for the Work Experience Modules: 152.

EXIT LEVEL OUTCOMES

1. The ability to cut, gouge and gas weld ferrous materials.
2. The ability to weld ferrous materials including stainless steel using Shielded Metal Arc Welding.
3. The ability to weld ferrous and non-ferrous materials using Gas Metal Arc Welding processes.
4. The ability to weld ferrous and non-ferrous materials using the Gas Tungsten Arc Welding process.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria Exit Level Outcome 1:

- Tools and equipment are selected, used and cared for to accepted standards.
- Safe work procedures, precautions and Personal Protective Equipment required for each process can be described and is adhered to.

- Cutting techniques, equipment setup and nozzle selection criteria and consequences if not adhered to can be explained for specific applications.
- Gouging equipment setup and settings/parameters and consequences if not adhered to can be explained for specific applications.
- Gas welding techniques, equipment setup and nozzle selection criteria and consequences if not adhered to can be explained for specific applications.
- Cut and gouge profiles meets accepted quality standards.
- Gas welded joints meet excepted quality standards.
- Safe storage and handling practices of gases and consequences if not adhered to can be explained and is adhered to.

Associated Assessment Criteria Exit Level Outcome 2:

- Schematic illustrations of Shielded Metal Arc Welding equipment can be labelled and the functions of selected components explained.
- Diagrams of welds are labelled using the correct welding terminology.
- Answers on welding of joints, demonstrates understanding of welding codes, the critical monitoring points, equipment settings, quality standards, and safety procedures.
- Answers on welding of materials demonstrate understanding of characteristics of materials.
- Shielded Metal Arc Welding processes can be explained in terms applications, and steps required to perform a quality weld and probable causes of defects.
- Welding symbols can be recognised and correlated to the type of joint.
- Welding consumables classification and applications can be explained.
- Safe work procedures, precautions and Personal Protective Equipment required for Shielded Metal Arc Welding can be described.
- Shielded Metal Arc welded fillet, plate and pipe joints meets prescribed welding codes or standards.

Associated Assessment Criteria Exit Level Outcome 3:

- Schematic illustrations of Gas Metal Arc Welding equipment can be labelled and the functions of selected components explained.
- Diagrams of welds are labelled using the correct welding terminology.
- Answers on welding of joints, demonstrates understanding of welding codes, the critical monitoring points, equipment settings, quality standards, and safety procedures.
- Answers on welding of materials demonstrate understanding of characteristics of materials.
- Gas Metal Arc Welding processes can be explained in terms applications, and steps required to perform a quality weld and probable causes of defects
- Welding symbols can be recognised and correlated to the type of joint.
- Welding consumables classification and applications can be explained.
- Safe work procedures, precautions and Personal Protective Equipment required for Gas Metal Arc Welding can be described.
- Gas Metal Arc welded fillet, plate and pipe joints meets prescribed welding codes or standards.

Associated Assessment Criteria Exit Level Outcome 4:

- Schematic illustrations of Gas Tungsten Arc Welding equipment can be labelled and the functions of selected components explained.
- Diagrams of welds are labelled using the correct welding terminology.
- Answers on welding of joints, demonstrates understanding of welding codes, the critical monitoring points, equipment settings, quality standards, and safety procedures.
- Answers on welding of materials demonstrate understanding of characteristics of materials.
- Gas Tungsten Arc Welding processes can be explained in terms applications, and steps required to perform a quality weld and probable causes of defects.
- Welding symbols can be recognised and correlated to the type of joint.
- Welding consumables classification and applications can be explained.
- Safe work procedures, precautions and Personal Protective Equipment required for Gas Tungsten Arc Welding can be described.
- Gas Metal Tungsten Arc welded fillet, plate and pipe joints meets prescribed welding codes or standards.

Integrated Assessment:

Integrated Formative Assessment:

The skills development provider will use the curriculum to guide them on the stipulated internal assessment criteria and weighting. They will also apply the scope of practical skills and applied knowledge as stipulated by the internal assessment criteria. This formative assessment leads to entrance into the integrated external summative assessment.

Integrated Summative Assessment:

The external summative assessment will be a trade test conducted in terms of Section 26 D of the Skills Development Act through an evaluation of written and practical tasks covering critical aspects of the trade and conducted in a simulated environment at an assessment centre accredited by QCTO by an assessor registered by National Artisan Moderation Body. The assessment will take place over a minimum of 2 days.

INTERNATIONAL COMPARABILITY

This qualification is based on the Minimum Requirements for the Education, Training, Examination and Qualification of Welding Personnel published by the International Institute of Welding (IIW). In 1999, the IIW launched an international programme for standardisation of the qualification of personnel involved in welding operations. A detailed guide on training and developed of persons involved in welding operations was produced as the accepted international standard, known as the 'Bratislava Agreement. Some 42 countries use these standards for the qualification of welders across the world.

During the design on this qualification, this guideline document was used as the international benchmark and South African specific needs and minor adjustments were made to establish a qualification that is both internationally comparable and fit for purpose in the South African context.

The work experience component of the qualification is a unique South African feature and was added to the qualification in accordance with the QCTO policy guidelines.

The acceptance of this international standard in training of welders will align our training with broadly accepted international standards.

ARTICULATION OPTIONS

Articulation opportunities with other metal trade specific qualifications in the unit group 6512, Welders and Flame Cutters, such as Pressure Welders and Fitter Welders, 6513, Sheet Metal Workers such as Boiler Makers will become reality as trade qualifications for these are developed. The structure of the curriculum recognises the internationally accepted progressive development route of welders through skill sets as:

- Fillet Welder.
- Plate Welder.
- Pipe Welder.

Even though related qualifications are not currently registered on the NLRD, progression to higher level welding trade specific employment opportunities is possible for the qualified welder in areas such as:

- International Welding Practitioners.
- International Welding Specialists.
- Welding Inspector: Level 1.
- Welding Inspector: Level 2.

MODERATION OPTIONS

N/A

CRITERIA FOR THE REGISTRATION OF ASSESSORS

N/A

REREGISTRATION HISTORY

As per the SAQA Board decision/s at that time, this qualification was Reregistered in 2015.

NOTES

Qualifying for external assessment:

In order to qualify for an external assessment, learners must provide proof of completion of all required modules by means of statements of results and work experience including Foundational Learning Competence or equivalent.

Grade 9 plus a Metal Work and Welding special skills based education program is accepted as an equivalent to the entry requirements.

Criteria for the accreditation of providers:

Accreditation of providers will be done against the criteria as reflected in the relevant curriculum on the QCTO website.

The curriculum title and code is: Welder, 651202000.

Trades Covered by this Qualification:

This qualification covers the following trades as recorded on the NLRD:

- 60719: Aircraft Welder (Aerospace).
- 60690: Aircraft Welder (Aerospace).
- 60762: Aircraft Welder (TRANSNET).
- 60756: Automotive Acetylene & Electrical Welder (Motor).
- 61289: Automotive Acetylene and Electrical Welder (Motor).
- 60772: Welder (Chemical, Oil and Allied).
- 60778: Welder (Sugar).
- 60784: Welder (Mining).
- 60728: Welder (Mining).
- 60693: Welder (Automobile Manufacturing).
- 60697: Welder (ESKOM).
- 60702: Welder (Explosives).
- 60709: Welder (Government).
- 60723: Welder (Metal).
- 60734: Welder (TRANSNET).

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION:

NONE

PROVIDERS CURRENTLY ACCREDITED TO OFFER THIS QUALIFICATION:

This information shows the current accreditations (i.e. those not past their accreditation end dates), and is the most complete record available to SAQA as of today. Some Primary or Delegated Quality Assurance Functionaries have a lag in their recording systems for provider accreditation, in turn leading to a lag in notifying SAQA of all the providers that they have accredited to offer qualifications and unit standards, as well as any extensions to accreditation end dates. The relevant Primary or Delegated Quality Assurance Functionary should be notified if a record appears to be missing from here.

NONE

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